

AMENDMENTS TO THE DRAWINGS:

The Applicants respectfully present herewith replacement Figs. 1-13, which include the desired changes, without markings, and which comply with 37 C.F.R. §1.84. The changes made to Figs. 1-13 are explained in the accompanying remarks section below.

REMARKS

The Office Action dated January 23, 2007, has been received and carefully noted. The above amendments and the following remarks are submitted as a full and complete response thereto.

By this Amendment, the drawings, Abstract, specification and claims 1-25 are amended. No new matter is presented. Claims 1-25 are pending and respectfully submitted for consideration.

Information Disclosure Statement

The Information Disclosure Statement (IDS) filed April 22, 2005, is objected to for failing to comply with 37 C.F.R. § 1.98(a)(2) which requires a legible copy of each cited foreign patent document. The cited foreign patents in the IDS are FR2761964A1, GB1531410A and FR1284714. The Applicants note, however, that the Examiner did consider document Nos. FR2761964A1 and GB1531410A, as indicated in the Examiner's Notice of References Cited. The Examiner also considered U.S. Patent No. 3,104,849 which is the English language counterpart to document No. FR1284714. As such, the Applicants respectfully submit that the foreign patent documents cited in the IDS have been considered by the Examiner through the Examiner's own search.

Oath/Declaration

The Office Action objects to the Declaration as being defective because it is not in English and states that a translation must be submitted to ensure the oath or Declaration is proper. Under U.S. patent practice, 37 C.F.R. § 1.69(b), unless the text of any oath or Declaration in a language other than English is in a form provided by the Patent and Trademark Office or in accordance with PCT Rule 4.17 (IV), it must be

accompanied by an English translation together with a statement that the translation is accurate. In this case, the present application is a PCT application and the Declaration states that is being filed in accordance with PCT Rule 4.17 (IV). As such, the Declaration complies with U.S. patent practice. Nevertheless, the Applicants submit herewith an executed English language version of the Declaration for the Examiner's convenience. Accordingly, the Applicants respectfully request withdrawal of the objection.

Objections to the Drawings

The drawings are objected to because the shading and dark hatching. The Applicants submit herewith replacement sheets with drawing Figures 1-13 correcting the shading and dark hatching. The Applicants respectfully submit that the drawings are in compliance with U.S. patent practice, and respectfully request withdrawal of the objection to the drawings.

Amendments to the Abstract

The Applicants have amended the Abstract in order to correct minor informalities.

Amendments to the Specification

The Applicants have amended the Specification to correct minor informalities. Support for the amendments to the Specification can be found in Figures 1 and 6.

Objections to the Claims

Claims 9-25 are objected to under 37 C.F.R. § 1.75(c) as being in improper multiple dependent form. The Applicants have amended the claims responsive to the objection. Accordingly, the Applicants respectfully request withdrawal of the objection.

Rejections Under 35 U.S.C. § 112

Claims 1-25 are rejected under 35 U.S.C. § 112, second paragraph, as being indefinite. The Applicants have amended claims 1, 4 and 5 responsive to the rejection and respectfully submit that all claims are in compliance with U.S. patent practice. Accordingly, the Applicants respectfully request withdrawal of the rejection.

Rejections Under 35 U.S.C. § 102

Claims 1-8 are rejected under 35 U.S.C. § 102(b) as being anticipated by Mazodier et al. (U.S. Patent No. 5,996,929, "Mazodier") (FR 2 761 964 A1). Claims 2-8 depend from claim 1.

To the extent that the rejection remains applicable to the claims as currently pending, the Applicants traverse the rejection and respectfully submit that claims 1-8 recite subject matter that is neither disclosed nor suggested by Mazodier.

Mazodier discloses a cooling-down plate 30 provided with a junction piece 34 fixed to the internal wall 20 at the front end of the wall protruding beyond the shaft 1. The junction piece 34 is provided with two orifices 29a, 29b, leading to both chambers 18a, 18b of the cooling-down plate 30, on either side of the central partition 26 and are connected, respectively, to both orifices 31a, 31b which are provided on the corresponding face 35a of the fluid box 35 on either side of the partition 38. The connection is made by a tube 33 of a ductile material, for example, an elastomer. See column 8, lines 20–30 of Mazodier.

The Applicants respectfully submit that Mazodier fails to disclose or suggest the claimed features of the invention. Claim 1 recites that each fluid supply or exhaust duct is at least partially inside the central shaft and fitted, close to the front end thereof, with a bent portion extending transversally to the longitudinal axis and emerging on a lateral

face of the shaft via a supply or exhaust transversal orifice, respectively, which is connected sealingly by at least one fitting of variable length to at least one inlet or outlet orifice, respectively, of at least one segment.

Mazodier, however, does not disclose or suggest at least the feature of a fluid supply or exhaust duct having a bent portion. The Office Action asserts that the supply conduit 44a and evacuation conduit 44b in Mazodier are comparable to the claimed supply and exhaust ducts. However, there is no disclosure or suggestion in Mazodier that the supply or evacuation conduits 44a and 44b are fitted with a bent portion extending transversally to the longitudinal axis and emerging on a lateral face of the shaft. The tubes 33a and 33b in Mazodier, asserted in the Office Action as comparable to the bent portion, do not emerge on a lateral face of the shaft. Specifically, Mazodier discloses that 33a, 33b are disposed at a distance from the shaft.

In view of the above, the Applicants respectfully submit that the Office Action has not set forth an anticipation rejection of claim 1 in view of Mazodier. Under U.S. patent practice, the elements in a reference must be arranged as required by the claim. See MPEP § 2131. The Office Action considers 33a and 33b as being comparable to the claimed bent portion and also as the claimed supply or exhaust transversal orifice. However, the Office Action misconstrued the elements in Mazodier, and did not identify the at least one fitting of variable length which connectedly seals a supply or exhaust transversal orifice to at least one inlet or outlet orifice of the segment as recited and arranged in claim 1. In particular, the Office Action did not mention this claimed feature in the rejection. As such, the Applicants respectfully submit that Mazodier fails to disclose or suggest each and every feature of the invention, as recited in claim 1.

To qualify as prior art under 35 U.S.C. § 102, each and every feature recited in a rejected claim must be disclosed by the applied art. Accordingly, Mazodier does not anticipate claim 1, nor is claim 1 obvious in view of Mazodier. Therefore, the Applicants submit that claim 1 is allowable over Mazodier.

Further Considerations

As indicated on page 3, lines 7-12 of the present application, in the arrangement of Mazodier, the supply and exhaust chambers 37a, 37b connected respectively to each segment 30 are arranged in a fluid box 35 attached to a front end of the central shaft 1 whereon a rotational driving torque is applied.

In addition, the radial displacement of the segments 30 is controlled in Mazodier by a tubular part 10 mounted slidably on the central shaft 1 and which must be connected to a control rod 6 by a linking part 7 passing before the front end of the central shaft 1 and which may be displaced axially by the control rod 6 alternately for controlling the expansion or retraction of the segments (30).

Therefore, in the arrangement of Mazodier, it is necessary to provide between the fluid box 35 and the front end of the central shaft 1, a free space for the displacement of the plate 7 with the rod 6 controlling the movement of the racks 4 as indicated in Mazodier (see column 7, lines 14-24).

Thus, on the rear face of the fluid box 35 are welded needles 42 leading inside the caissons 37a, 37b of the fluid box 35 by orifices 43a, 43b (Figure 2), two needles 42 being provided for each caisson to ensure the supply or evacuation of water. To this aim, each needle 42 (Figure 1) goes through a corresponding passage provided in the plate 7 and engages at its end directed towards the shaft 1 into an orifice 44' provided

with a gasket and constituting the outlet of a conduit 44 going through the shaft 1 longitudinally (see Mazodier, column 7, lines 28-49).

As indicated on page 4, lines 1-13 of the present application, in such an arrangement in Mazodier, the segments are prolonged beyond the front end of the central shaft 1 in order to provide a housing wherein is placed the fluid box 35 which is connected to the end of the central shaft by rods 39 going through the linking part 7 to enable the displacement axial thereof.

However, in a metallurgical plant, in particular, a continuous casting plant, the mandrel may be subjected to shocks and the fluid box 35 in Mazodier, which is placed at the end of the mandrel, may be damaged.

Thus, one aspect of the present invention is to solve such problems while keeping the advantages of the cool mandrel described in Mazodier via a simpler arrangement of the cooling circuit enabling, as well as providing better protection of the supply and exhaust members of the heat exchanging fluid (see page 4, lines 1-19 of the present application).

In the present invention, the fluid box (distribution part) is not placed before the front end of the central shaft, but is constituted in the form of a ring having a concave internal face threaded sealingly on a smooth bearing surface of the lateral face of the central shaft.

Therefore, as indicated in claim 1, each supply or exhaust duct arranged inside the central shaft is fitted, close to the front end thereof, with a bent portion extending transversally to the longitudinal axis of the shaft and emerging on a lateral face of said

shaft via a supply or exhaust transversal orifice which is connected sealingly by at least one fitting of variable length to at least one inlet or outlet orifice of at least one segment.

Thus, in the invention, the fittings of variable length have a transversal direction. In contrast, in Mazodier, the fittings of variable length 33a, 33b have a longitudinal direction as the needles 42 between the water box 35 and the supply or exhaust duct 44a, 44b.

Conclusion

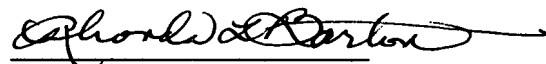
The Applicants respectfully submit that claim 1 is allowable. Claims 2-25 depend from claim 1. The Applicants further submit that each of these claims incorporate the patentable aspects thereof, and are therefore allowable for at least the same reasons as discussed above. Accordingly, the Applicants respectfully request withdrawal of the objections and rejections, allowance of claims 1-25 and the prompt issuance of a Notice of Allowability.

Should the Examiner believe anything further is desirable in order to place this application in better condition for allowance, the Examiner is requested to contact the undersigned at the telephone number listed below.

In the event this paper is not considered to be timely filed, the Applicants respectfully petition for an appropriate extension of time. Any fees for such an extension, together with any additional fees that may be due with respect to this paper,

may be charged to counsel's Deposit Account No. 01-2300, referencing Attorney Dkt. No. 103120-00065.

Respectfully submitted,



Rhonda L. Barton
Attorney for Applicants
Registration No. 47,271

Customer No. 004372
AREN'T FOX LLP
1050 Connecticut Avenue, N.W., Suite 400
Washington, D.C. 20036-5339
Tel: (202) 857-6000
Fax: (202) 638-4810

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Enclosures: Substitute Abstract
Replacement Sheets of Drawing Figures 1-13
English Language Version of Declaration
Petition for Extension of Time (3-month)
Extra Claims Fee Transmittal